UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Region 8
Albuquerque, New Mexico

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WILLOWS IN REGION VIII

Notes on their Classification, Distribution, and present Significance, with Suggestions for their Use in Erosion Control.

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INTRODUCTION

The willows represent a group of plants which are among the most difficult plants to identify properly. This paper is merely a discussion of some of those found in Region 8. It would take many years of careful study and of experimental work to determine what willows we have, where they grow, how palatable they are, and how and where they should be used. Perhaps the best method to use in learning to know them is to collect specimens from many localities and have them identified. In this way we come to know the willows by localities.

Specimens of the willows discussed below were submitted by the Nursery Division to the Division of Plant Exploration and Introduction, which office has made arrangements to have identifications made by Dr. Carleton R. Ball, Executive Secretary of T.V.A., Washington, D. C., who is a national authority on willows. Dr. Ball carefully studied the specimens sent to him and returned a report on their identifications. If you are interested in the willows in your region,- and surely they are among our most important erosion control and browse plants,- you should carefully collect and prepare specimens in duplicate, and even more carefully prepare notes to accompany each collection. These should be submitted through the Forestry Division to the Nursery Division in Albuquerque. The Nursery Division will in turn submit the material to the Division of Plant Exploration and Introduction for determination by Dr. Ball.

There is, besides the identification work, the even more important study of the willows for erosion control purposes. Willows in which you are interested should receive attention at the nurseries. If 50 or 100 cuttings can be made while the willows are dormant, and sent to the Nursery Division at Albuquerque, New Mexico, they will be tried out under nursery conditions and if they appear promising, tried in supplementary plantings. Cuttings should be packed in moist, (not wet) packing moss and wrapped in waxed paper. The packing moss can be obtained at a nursery or greenhouse and the waxed paper at any grocery store. Don't send cuttings without complete data. It will take very little time to write a letter stating where your cuttings were made, and a brief description of the willows and the sites in which they grow.

Most willows are readily grown from cuttings if these are made when the wood is somewhat dormant or when the leaves have not appeared in the spring. If methods can be devised whereby cuttings can be made in the summer and fall and planted directly in the field, the use of willows can be greatly extended. The Forestry Division brought this to the attention of the Nursery Division, and arrangements are being made to have willow cuttings treated with root promoting hormones and chemicals in midsummer, with a view to developing methods which can be quickly and satisfactorily applied in the field and which will guarantee an adequate survival.

Among the following willows are some which are outstanding:

Salix exigua, the Sand Bar, or as it is more often called with us, the Basket or Acequia Willow, is a godsend where surface erosion in bottoms is to be prevented. It is quite drought resistant, a good desilter, and good browse, and it lays down in front of the flood. It is not deep rooted and on stream banks is often undermined. Salix gooddingii, or Dudley Willow, is admirably suited for use on stream banks in all of our warmer regions. Doubtless it will do satisfactory work much farther north. The fact that it grows naturally at Prescott, Arizona, and at Laguna and Socorro, New Mexico, indicates that it will withstand considerable cold. This makes a large tree in time. Salix fragilis, Crack Willow, is an exotic suitable to a wide range of conditions in Utah, Colorado, Arizona, and New Mexico. It makes a large, beautiful tree. Salix exigua variety, a willow collected in the Baboquivari Mountains, Arizona, is with us a different plant from the Sand Bar Willow. It makes a fair sized tree, sprouts readily from injured or cut roots, and is a soil binder par excellence. The roots are both deep and shallow. Salix bonplandiana is a handsome tree willow suited to our warmer regions. It should be tried in cultivation. The fact that this species grows above Clifton, Arizona, indicates that it will withstand quite severe cold. Salix melanopsis, or the Dusky Willow, is comparable to the Sand Bar Willow. It is suited to a wide range of conditions at medium altitudes, and should be given careful trial in the nurseries and in our observational plantings. Salix taxifolia, or Yew-leaf Willow, is much slower growing than many of our willows. It has most everything that can be asked of a willow. It is excellent forage, a "whale" of a soil binder, is fairly drought resistant, and should make a handsome ornamental. The future will reveal its weaknesses. But these are only our more common willows. Others may prove to be immensely important.

For information given here the writer is indebted to Dr. Carleton R. Ball, for identifications; to Van Dersal's "Native Woody Plants", for some generalizations in distribution; to Messrs. Dale Schott, George D. Swainston, W. S. Swenson, and N. A. Mathey, for a portion of the willow collection; and to Mr. J. A. Libby, for cooperation. For errors, the writer assumes the responsibility.

Salix alba, European White Willow.

This is a large, handsome tree. The leaves are 3-4 inches long, 3/4 - 1 inch wide, and taper at both ends (to a long slender point at the free end); are very finely serrate from base to tip, are glaucus below, dark green above.

It is widely introduced but is not common in Arizona and New Mexico.

Collections have been made on the Sapello River, at Floravista, and on Cimarron Highway, New Mexico; and at Morgan, Utah.

It is suggested for stream and windbreak plantings.*

Salix amygdaloides, Peachleaf Willow.

This is a shrub to a large tree. The leaves are light green, tapering at both ends, 1½ - 3 or 4 inches long on normal growth, 3/4 - 1 inch wide, gradually tapering to a slender point, finely serrate throughout, and slightly glaucus below. The bark on new growth is yellowish or on vigorous shoots brownish purple; the catkins are long and loose.

This species is widely distributed in the United States. It has been noted at Green River, Moab, foothills east of Heber, below Thistle, Brigham City, Paradise and Mona, Utah; and at Shiprock and Bernalillo, New Mexico.

Salix barclayi, Barclay Willow.

This is a small to large shrub forming dense thickets along alpine meadows. The leaves are 1 - 2 inches long, 1/2 - 3/4 inch wide, taper only slightly at base and apex (usually acute), slightly glaucus below, and finely serrate throughout. The young stems are purplish brown.

This willow is important at high altitudes in Colorado and Utah. It has been noted at Frisco, Summit County, Colorado.

Salix bebbiana, Bebb Willow.

This is a shrub to fair sized tree, more commonly with us a shrub, with small leaves 1 inch long by 5/8 - 1/2 inch wide, or on vigorous or new growth two or three times as large; grayish tinged due to very short pubescence above and below, oval oblong, acute, not serrate to finely serrate. The young twigs are red to reddish brown. It forms clumps and thickets and also grows singly.

This species is widely distributed. Collections have been made on the foothills east of Heber, Utah, and at Nutrioso, Arizona.

It is suggested for stream planting at relatively high altitudes.

Salix bebbiana var. perrostrata.

This is similar to S. bebbiana. It forms dense clumps at high altitudes.

It has been noted at Soden and Baldy Meadows, New Mexico; on the Conejos River, and between Climax and Frisco, Colorado.

This doubtless can be used in similar sites to the species.

*Willows and cottonwoods are robbers and should not be planted close to cultivated crops.

Good land use. The slope in the immediate foreground is well protected by Gambel Oak. The bottom land is upland meadow,- native grasses recently mowed,- and along the stream is brush, mostly willow. Land of this type is not a public liability. Scene west of Walsenburg, Colorado.

The Peachleaf Willow - Salix amygdaloides.

Note the sprawling habit so characteristic of this species. It is an excellent erosion control plant, is good forage and furnishes shade and shelter for stock.

Scene five miles below Weston, Colorado.

Salix alba

Salix amygdaloides

Salix barclayi

Salix bebbiana

Salix bebbiana var. perrostrata

Salix bonplandiana

Salix bonplandiana, Bonpland's Willow.

This is a large tree frequently 50 feet high and 3 feet or more in diameter. The mature leaves are frequently 6 inches long and 1 - 1½ inches wide (but dominantly they are smaller), dark green above with mid-vein and veins white and prominent, lower surface densely glaucus, gradually tapering at both ends, the outer ends being long lance-shaped.

This tree is confined to extreme southern Arizona, the furthest north reported being north of Clifton, Arizona.

This species is suitable for erosion control work and for yard and street planting. It is not drought resistant.

Salix bonplandiana var. toumeyi.

This is a tree related to the species and occupying a similar range in Region 8. It is abundant in Santa Cruz and Pima Counties in Arizona, along streams in the foothills. It is possibly less desirable than the species as an ornamental. In most places where this has been observed it is not a very hardy tree.

Salix caudata var. bryantiana.

This frequently makes a shapely tree (cultivated to some extent), more often forming tall clumps. The leaves are green above and below, 3 - 4 inches long by 1/2 - 1 inch wide, gradually tapering at both ends, especially at the free end which is long lance-shaped, often slightly curved, and finely serrate throughout. The young twigs are light yellowish green and shining.

This species is widely distributed in the mountains of Colorado and Utah; probably also in northern New Mexico and northern Arizona.

Note the following exact localities: Springerville, Arizona; Thistle, foothills east of Heber, below Hatch, and Big Cottonwood Canyon, Utah; Conejos River, Glade Park, on the Little Dolores, Buena Vista, ten miles west of Steamboat Springs, and between Buena Vista and Leadville, Colorado.

Suggested for trial for stream planting at moderately high altitudes.

Salix exigua, Acequia or Basket Willow.

This is a low shrub, rarely reaching the height or character of a small tree; commonly forming dense thickets along stream bottoms, and not infrequently invading somewhat drier arroyos. It is, however, not to be classed as very drought resistant. Its root system is admirably suited to prevent surface erosion but heavy floods frequently undermine entire clumps as it is not deep-rooted. The shrub may be recognized by its thicket habit and by its narrow light green to silvery leaves, with short petioles. The leaves of the species are frequently 2½ - 3 inches long but usually much shorter and occasionally 1/4 inch wide.

This is one of the most widely distributed willows in the west.

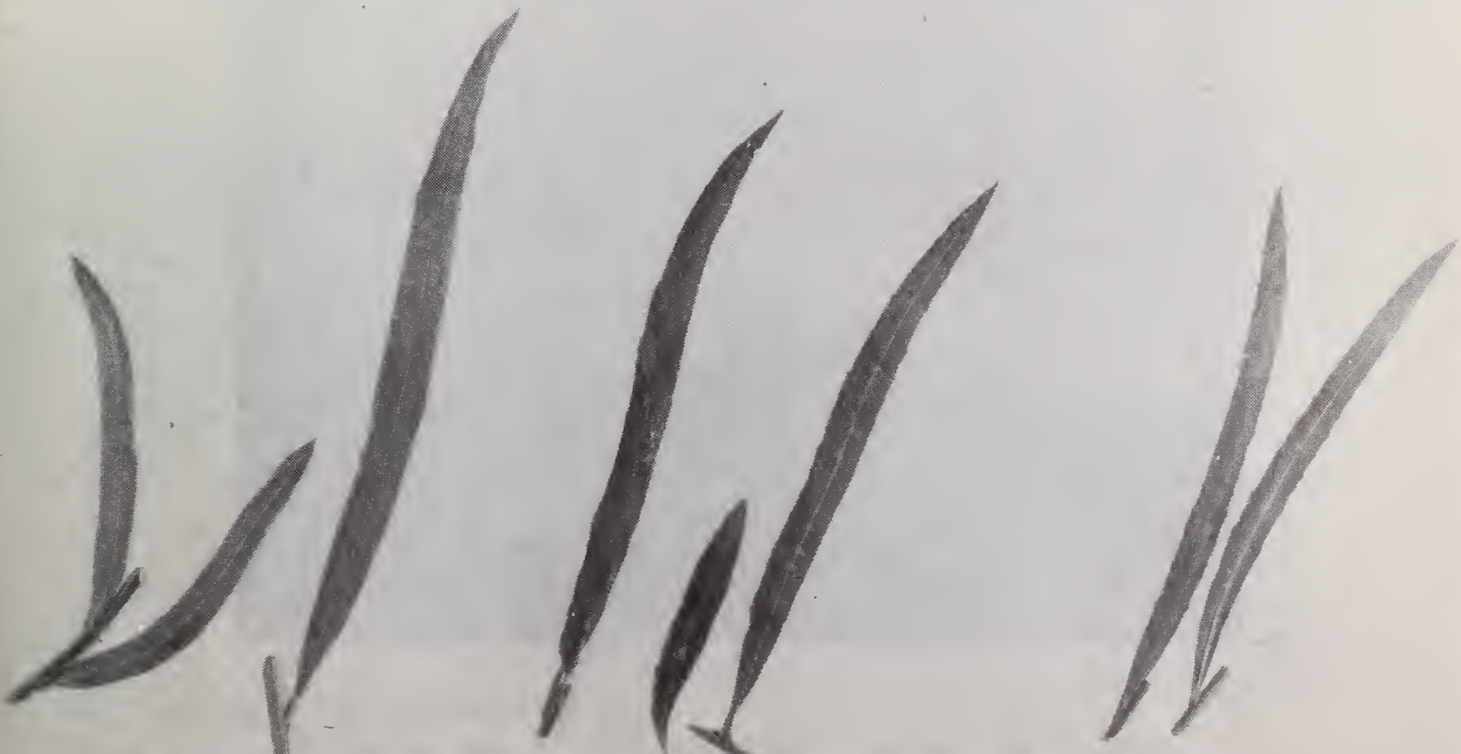
Note the following localities: Vermillion Cliffs, Nutrioso, 10 miles south of Showlow, Springerville, Moenave, and Stocton Pass

Salix caudata var. bryantiana.
A willow which withstands much abuse. The ground under this tree is trampled solid and has been so for years. This willow is suitable for planting at relatively high altitudes. The trees in the background are aspens and firs. Scene near the summit of the mountains west of Springville, Utah.

Salix exigua var.
This row is along a ditch bank at the Soil Conservation Service Nursery at Tucson, Arizona. It makes a small tree, is very rapid growing and spreads by root sprouts. This row is two years old.

Salix caudata var. bryantiana

Salix bonplandiana var. fowneyi



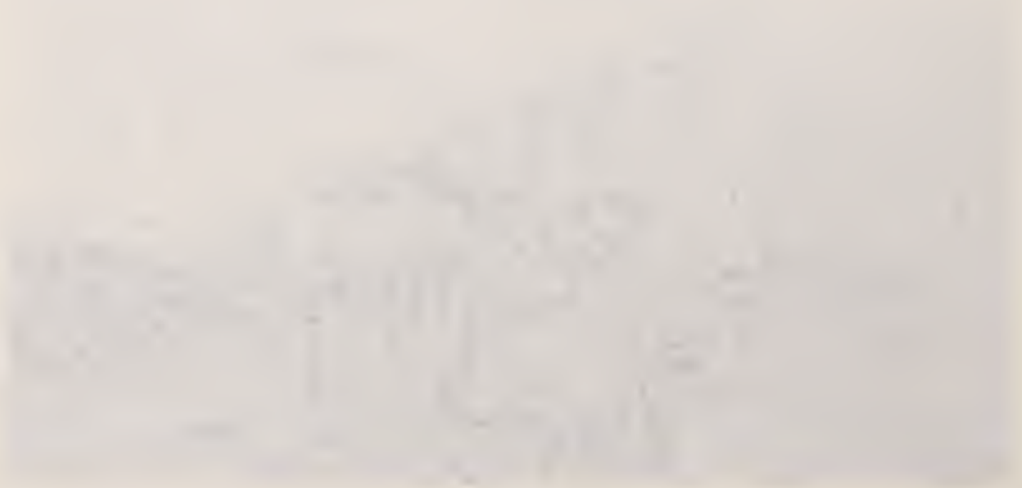
Salix exigua

Salix exigua var. luteo-sericea

Salix exigua var. virens

Acequia Willow, Salix exigua.
Planted in an abandoned river channel to increase silt deposition. Cuttings planted March, 1937, and photo taken July 27, 1937.

Salix exigua var. virens.
This is one of the excellent varieties of the Acequia Willow. Note the density of the willows at the curve of the stream where erosion would otherwise be severe. Scene at the mouth of Provo Canyon, Utah.



The Acequia Willow - Salix exigua.
The root system, explaining the value of this plant in controlling erosion.

Acequia Willow - Salix exigua.
Planted in the side of an arroyo bank. Note the spread from top to bottom of the wash. The planting was one year old at the time the photo was taken. Mexican Springs, N. M.

Salix exigua (Cont.)
in the Graham Mountains, Arizona; Ruidoso, canyon west side of the Sierra Nacimento Mountains, Vermejo River, and Waterflow (San Juan County), New Mexico. It is exceedingly abundant along the Rio Grande River and is widely distributed throughout central and northern New Mexico. It occurs in the foothills east of Heber, at Scipio, and Kanosh, Utah.

This is one of our most useful willows for erosion control planting at medium altitudes. It is easily grown from cuttings and is excellent browse. The bark and twigs are used by the Indians in basketry. The straight stems were used in vast quantities by the early Pueblo dwellers for making door and window curtains resembling venetian blinds. Many of these curtains are well preserved in the ruins at Aztec, New Mexico.

A variety of this willow, Salix exigua var. virens, is found in Fish Creek Canyon where the Apache Trail crosses it. This variety has long (4 - 6 inches) leaves. It is too poorly known to Soil Conservation Service to warrant recommendations.

A variety, Salix exigua var. luteo-sericea, was collected between Leadville and Buena Vista, Colorado, and in Cimarron Canyon, New Mexico. This too, is too poorly known to Soil Conservation Service to permit recommendations.

Still another variation, and one that has a tendency to form a small tree, grows in Stocton Pass in the Graham Mountains in Arizona. This is one which warrants trial in the nursery to determine its root character. It probably has a much deeper root system than the typical S. exigua.

A variety of the species, or what may prove to be a distinct species, forms a small tree in the Baboquivari Mountains and in Sycamore Canyon in Santa Cruz County, Arizona. It has been planted on the nursery at Tucson and has proved to be a remarkable accession. It grows rapidly and has deep roots that sprout freely when cut. The shrubs or small trees form a dense windbreak when planted close together, and at Tucson the leaves are held all winter except in unusually cold seasons. This willow is probably slightly more drought resistant than the usual run of willows but cannot be expected to grow along dry arroyos or on dry slopes.

Another variety, Salix exigua var. stenophylla, occurs in the mountains above Santa Fe, New Mexico. It is little known.

Salix fragilis, Crack Willow.

Dr. Carleton R. Ball writes as follows:

"Salix fragilis L., is the Crack (fragile or brittle) willow of Europe. It was introduced to America with the early colonists, partly from sentiment but chiefly as a source of gunpowder. Its fine and uniform charcoal was the source of most of the gunpowder used in America until smokeless (synthetic) powder was invented. All our wars to the Spanish War were fought with such powder and the Duponts made the first fortune in that business."

When planted singly this willow makes a large and beautiful tree but when planted close it forms a large shrub and makes excellent windbreaks. Dr. Ball writes further, that this willow was

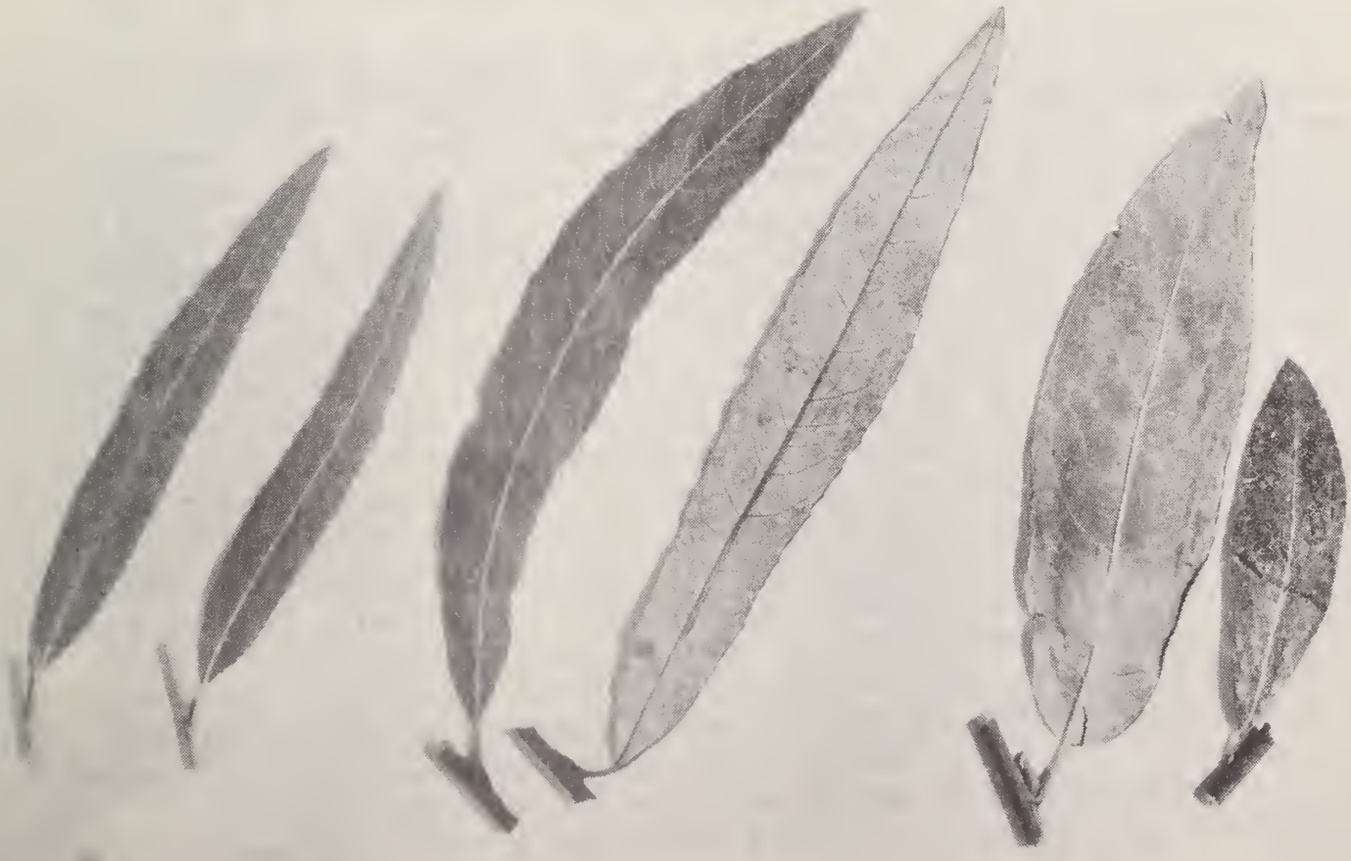
The Crack Willow - Salix fragilis.
A tree at Mora, New Mexico. Note the huge buttressed roots.

The Crack Willow - Salix fragilis.
An avenue of tall trees north of Watrous, New Mexico. This willow is an exotic, is rapid growing, and makes a large tree. It is useful for shade and erosion control. Formerly the wood of this species was used extensively for charcoal for use in making gunpowder.

Salix geyeriana var. argentea

Salix fragilis

Salix gooddingii



Salix gooddingii var. vallicola

Salix irrorata

Salix laevigata

formerly planted entirely around farms in the upper Mississippi Valley but was eventually removed as it caused snow to pile into the lanes and prevented the roads from drying out in the spring.

This handsome willow has been planted in many parts of Colorado, Utah, and New Mexico, and is to be recommended for its rapid growth and symmetrical form. It has rather slender light green leaves which are often slightly glaucus below. They are rather narrow peachleaf in form, averaging $2\frac{1}{2}$ - 3 inches long by 1/2 - 3/4 inch wide. The edges are serrate throughout. The small branches are very brittle. It is not drought resistant.

SCS men have collected this species at Paradise, Scipio, and Charleston, Utah. A large collection for nursery use was made at Watrous, New Mexico. A hybrid with a closely related willow, Salix alba, was collected at Craig, Colorado.

Salix geyeriana var. argentea.

This species was collected in but two places by SCS men in Region 8. It is doubtless widely distributed in Colorado and Utah, and northward. It was collected at relatively high altitude north of Walden, Colorado, where it formed dense low clumps, and at a point 32 miles out of Salt Lake City on the Heber road. The leaves of this willow are quite distinctive as they have a silvery pubescence, especially on the under side, but also above, taper gradually and uniformly at both ends to narrow points, average about $1\frac{1}{2}$ inches long by 3/8 inch wide, with margins not noticeably serrate. The young twigs are purplish brown.

This willow may prove of importance for erosion control at relatively high altitudes. It withstands considerable alkali. No work has been done with it in the nurseries.

Salix gooddingii, Dudley Willow.

Probably the most important willow in Arizona, New Mexico, southern Utah, southern Nevada, and southern California, with the possible exception of the Basket Willow, is Salix gooddingii and its variety, vallicola. The species and the variety are not easily distinguished in the field and for our purpose may well be considered together. This is the common tree willow along the lower Colorado, along the Gila, and the Salt Rivers. It also occurs in the Rio Grande Valley at Bernalillo, Socorro, Silver City, Florida, and Laguna, and in the Animas Valley, New Mexico; in the vicinity of Globe, at Fish Creek on the Apache Trail, on Aravaipa Creek, in the foothills of the Catalina Mountains, at Nogales, at Prescott, and at the Alamo Crossing of Bill Williams River, Arizona; and at Moab and southward, in Utah. In the Animas Valley in New Mexico it makes a large tree 3 - 4 feet in diameter and 40 - 50 feet high. The leaves of this species are narrow, taper gradually at both ends, and are finely serrate throughout. They are 2 - 3 inches long by 1/4 - 1/2 inch wide. The pistillate catkins are rather loose and the capsules distinctly stalked.

Locally this is called Black Willow and in literature it is frequently referred to as the Dudley Willow, or less frequently, as the Goodding Willow.

Dudley Willow - Salix gooddingii

Two specimens. The one above is in the Animas Valley, New Mexico, and the one below is three miles north of Prescott, Arizona. This willow is being used extensively for stream bank protection in southern Arizona. It doubtless can be used at altitudes comparable to those at Prescott, Arizona.

Salix gooddingii (Cont.)

The Soil Conservation Service at Safford, Arizona, is recommending this highly for stream bank protection because of its deep root system. It is dislodged by floods with great difficulty.

Salix irrorata, Pussy Willow, Bluestem Willow.

This is a quite distinctive small willow which seems to have a much more limited distribution than many of our willows. It occurs at medium to relatively high altitudes in eastern Arizona and perhaps throughout New Mexico. Soil Conservation Service men have observed it at Rock Creek Crossing below Beaverhead, at Beaverhead Ranger Station, at Fort Stanton, near Gila, and on the west slope of the Black Range, New Mexico; and at Bayfield, Colorado. Leaves on vigorous new growth are 2 - 3 inches, or even 5 inches long, by 3/8 - 5/8 inch wide, often almost oblong in outline but tapering at the ends and slightly to distinctly serrate throughout. Young leaves are bright green above and bluish white glaucus below. The twigs are usually blue to purplish brown and glaucus. The leaves on normal growth are much smaller and less glaucus below.

This willow is not sufficiently abundant to be of great economic value. It is browsed and appears to be a good soil binder along streams. It has not been used in the nurseries but well deserves careful trial.

Salix laevigata, Red Willow.

This is a small to large tree with large, light green leaves without noticeable serration. They are frequently 5 inches or more long and 1 inch wide and much paler green above than below.

In Region 8 this seems to be a relatively rare tree. According to Van Dersal it occurs also in California. Soil Conservation Service men have reported it from Leap Creek and from a point four miles north of Kanab, in southern Utah. A variety of this species, Salix laevigata var. araquipa, has been collected on Pintura Creek, southern Utah, and at Prescott, Arizona, by Soil Conservation Service men. In both places it is a good tree. The species and the variety are worthy of trial in the nurseries.

Salix lasiandra.

This species seems to be much more common in other regions than in ours. With us it is commonly a large shrub or small tree but is reported to be a fair sized tree elsewhere. It is reported from the Cascade and Sierra Nevada Mountains as well as in Utah, Colorado, New Mexico, and Arizona. All the material at hand is from relatively high altitudes.

This is a bright green luscious looking willow with peach-leaf leaves with long tapering points and very shallow serrations. The leaves are 2 - 5 inches long and 1/2 - 1 inch or more wide. Those on the older growth are smaller and more oblong in shape. Leaves on vigorous shoots are glaucus below. The young twigs are yellowish green shading to brownish purple.

Salix lasiandra (Cont.)

As observed in Region 8, it commonly grows in large clumps at medium to high altitudes. Exact localities at which it has been collected are 10 miles south of Showlow, Arizona, on Highway 60; Soden and Baldy meadows west of Cimarron, Beaverhead Ranger Station, and 81 miles north of Santa Fe on the road to Chama, New Mexico; the Colorado National Monument out of Grand Junction, Colorado; Paradise, Utah; and four miles north of Kanab, Utah.

At Beaverhead, New Mexico, this is an excellent willow and a promising soil binder along streams. Present plans contemplate its early trial in the Soil Conservation Service nurseries.

Salix lasiolepis, Arroyo Willow.

This is widely distributed in the west and is very variable. It is a shrub or small tree in Region 8, and is reported to be a large tree in regions of optimum development. Vigorous shoots frequently have leaves 4 - 5 inches long and 3/4 inch wide, with margins slightly undulate and revolute but not serrate. The upper surface is dark green and the lower surface densely glaucus. The young twigs are densely short woolly. The leaves are generally somewhat oblong in outline and usually somewhat abruptly acuminate toward the tip. On older twigs the leaves are much smaller and are frequently club-shaped, being more slender near the base than near the apex.

This species has been observed by Soil Conservation Service men at the American Ranch near Prescott, on Oak Creek, and Cave Creek in the Chiricahua Mountains, Arizona; on Pintura Creek, below Hatch, and four miles north of Kanab, Utah.

This willow does not seem to be outstanding and no work has been done in growing or cultivating it.

Salix ligulifolia.

This is more variable in leaf character in the old and new growth than most of our willows. The leaves on vigorous young stems are often four or more inches long and one inch wide, while on old wood the leaves are frequently 1 inch by 1/8 inch, and often smaller. They are linear-oblong in outline and rather abruptly acute or acuminate at the tip. The leaf margins are not serrate. The large leaves have quite large auricled stipules.

This species has a limited distribution but is apparently a willow of some importance locally. Soil Conservation Service men have reported it from Rio Bonito in Lincoln County, and the west slope of the Sierra Nacimento Mountains, New Mexico; and from Springerville, Arizona. No work has been done with this willow in the southwest up to the present.

Salix lutea, Yellow Willow.

This is widely distributed in the west but is not among our abundant willows. As indicated by the name, the leaves and even the stems and twigs have a yellowish cast. The leaves on normal growth are about two inches long by 5/8 - 3/4 inch wide,

Red Willow - Salix laevigata var. araquipa.
This magnificent specimen is three miles north of Prescott, Arizona. It is not one of our common willows but judging from this tree the species is worthy of careful attention. This specimen is at least 25 feet tall.

Salix ligulifolia.
At relatively high altitudes in the mountains are several species of clump willows of great importance in binding the soil along streams and in bottom lands. This is one of the better species. Scene in Soden and Baldy meadow just north of Cimarron, New Mexico.

Salix lasiandra

Salix lasiolepis

Salix ligulifolia

Salix lutea

Salix lutea (Cont.)
rather thin and undulate to serrate margined, and narrowly ovate in outline, rather short acuminate at the free end and often obtuse at the petiole, glaucus below.

Collections were made recently at Moab, the hills east of Heber, below Thistle, Utah; and at San Luis, Colorado. At the last mentioned place it is in cultivation and is a handsome tree.

Collections were made of Salix lutea var. platyphylla at Paradise, Utah. The trees at San Luis, Colorado, approximate Salix lutea var. famelica, Ball.

The striking appearance of the trees at San Luis, Colorado, suggests their use for seepy places along irrigation ditches and at relatively high altitudes along highways. Their use, judging by these specimens, may become quite extensive.

Salix melanopsis, Dusky Willow.

This is widely distributed in the west but occurs in abundance in our region only in Colorado and Utah at moderate altitudes. In shape and size of leaf it strikingly resembles Salix exigua. The peculiar yellowish green color, however, appears distinctive. Like Salix exigua, it forms dense thickets of straight slender stems.

Our collections are from Monticello, Mona, Paradise, and Moab, Utah; between Leadville and Buena Vista, and between Dillon and Kremmling, Colorado. (The last recorded collection is a variety of the species, i.e., Salix melanopsis var. tenerrima). This species and its varieties are among our most promising willows and they should be given careful trial. They are not drought resistant.

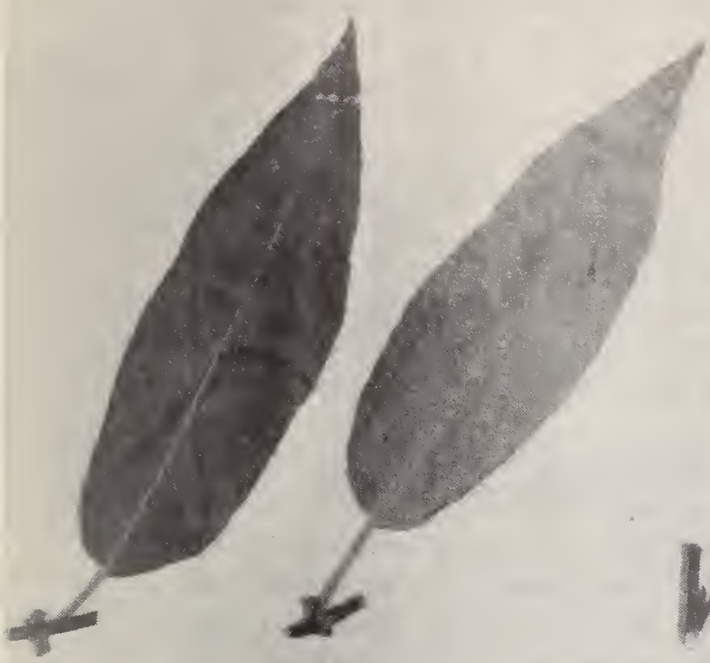
Salix nigra, Black Willow.

This does not occur naturally within our range but it is common in the Mississippi Valley and eastward. This is a large willow, frequently making a tree 50 feet high or more and two or three feet in diameter. It has leaves 3 inches or more long by 1/2 to 1 inch wide, with tapering points and serrate edges. It is frequently planted where a rapid growing tree is desired, along streams and fence rows. The wood is poor and rots quickly, and the trees are short-lived. It is a good tree, however, to hold stream banks and is admirably suited to northern New Mexico and doubtless many parts of Colorado and Utah. It is doubtful, however, whether this is comparable in our region to the Dudley Willow.

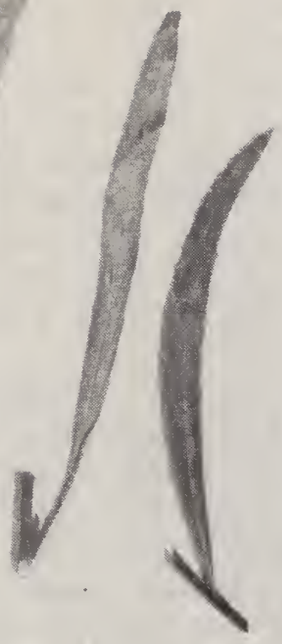
Salix pseudo-cordata.

This is a rare species with dark green leaves which are broad at the base, not quite cordate, however. They are thin, very finely serrate, almost oblong but short acuminate at the tip, about 1½ inches long by 5/8 inch wide. The twigs are dark purplish brown.

We have but one record of this species. This is between Leadville and Buena Vista at quite high altitude. Until such time as our work embraces high altitudes this clump willow will probably receive no attention.

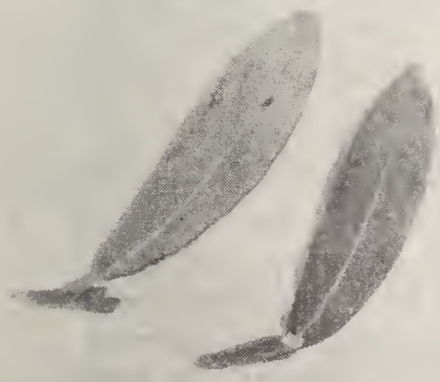


Salix lutea var. platyphylla

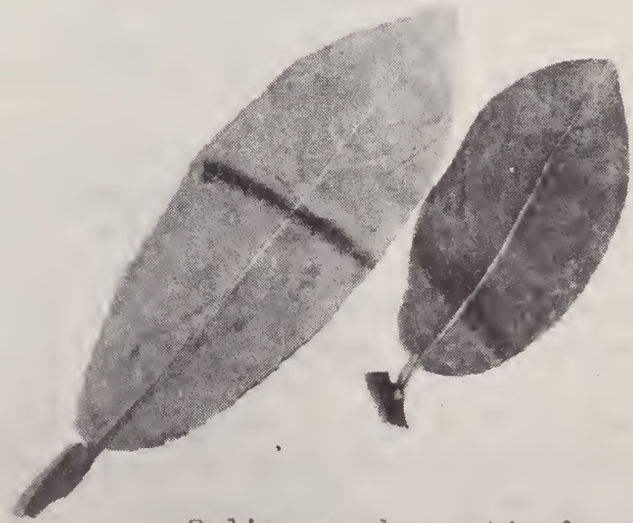


Salix melanopsis

Salix pseudo-cord



Salix pseudo-lapponum



Salix pseudo-monticola

Salix pseudo-myrsinites

Salix scouleriana

Salix pseudo-lapponum.

At the only point at which this was observed, i.e., in the canyon above Cedar City, Utah, it is a tall shrub growing in dense clumps. It has small leaves on the mature wood, 1½ - 2 inches long by 1/2 - 3/4 inch wide. These are oblong in outline, tapering at both ends but wider beyond the middle away from the base, almost without serration, dark green above with well marked veins and glaucus under-surface. The dark young twigs are at first covered with a tomentum which soon disappears. The clumps are dark in hue compared with surrounding vegetation.

From the location in which this willow grows it looks promising for erosion control. No work has been done with it in the nurseries to date. It is probably relatively rare.

Salix pseudo-monticola.

This is another rare willow. Our only record of it is in the Colorado National Monument south of Grand Junction. Of course our readers will realize that this in no way represents its distribution. Where collected it is a large clump willow with dark twigs and leaves which resemble cheery leaves in size and shape. Here the resemblance ends, however, for the leaves are glaucus on the under-surface and pale green above.

Salix pseudo-myrsinites. This is a shrub which forms dense clumps along streams and wet bottoms at high altitudes. It has small leaves about 1 inch long by 1/4 - 5/16 inch wide. These are rather pale green, shallowly but finely serrate, and tapering at each end. The under-surface of young leaves is silvery with sparse hairs.

In our range this species is confined to Colorado and Utah in the rather high mountains. We have collections from Thistle, the foothills east of Heber, and the head of Price River, Utah.

This willow is worthy of trial at relatively high altitudes.

Salix scouleriana, Fire Willow.

This is a tall shrub or occasionally a small tree with very distinctive leaves. These are much wider near the end than at the base and are more often than otherwise rounded at the apex or blunt. They are 1½ - 3 inches long by 3/4 - 1 inch wide, pale glaucus below and dark green above. The small twigs are hairy. Those somewhat older are purplish brown.

This species is widely distributed in the west at relatively high altitudes. Owing to its habit of occupying burned-over areas it is called Fire willow. It, however, never, or rarely, forms stands dense enough to constitute a good erosion control plant. This is one willow that is rarely confused with other species. It should be propagated in the nursery and in observational plantings at relatively high altitudes.

Our only collections are from the divide north of Alpine, Arizona, and from Electric Lake, Colorado. Its very abundance, however, leads to its being ignored.

Salix subcoerulea, Blue Willow.

This is a small to large shrub which is relatively rare in our region but quite widely distributed in the west. Soil Conservation technicians have collected it in but two localities, i.e., seven miles west of La Veda Pass in Colorado, and at Tres Ritos, Taos County, New Mexico. In these localities it is a clump willow about fifteen feet tall. The small twigs are dark reddish brown; the leaves are short petioled, oblong in outline, usually blunt pointed, without serration, dark green above and silvery white (with very short hairs) below. The leaves on normal growth are 1½ - 2½ inches long by 1/2 inch or less in width.

No attempt has been made to propagate this willow. Locally, however, it is an excellent erosion control agent.

Salix taxifolia, Yew-leaf Willow.

This is one of the willows which is easy to recognize. Its leaves are very narrow, 1 - 1½ inches long, almost sessile, and have a distinct point or cusp at the end. The margins are shallowly and remotely serrate and the foliage as a whole has a tawny grayish green appearance. The twigs are reddish brown. The branches on the trees form canopies just the height of a cow as the leaves and twigs are browsed where accessible. The twigs and small branches form dense compact crowns. The trees which are commonly low, not usually more than 20 feet high, are in striking contrast to other willows and to other vegetation where they grow.

The distribution of this willow is limited in Region 8 or for that matter in the United States, being confined to extreme southern Arizona and southwestern New Mexico. Our records show collections from Sycamore Canyon in Santa Cruz County, Santa Catalina Mountains, and the San Rafael Valley, Arizona; and Animas Valley, New Mexico. It is abundant also along the Santa Cruz River, just north of the Mexican border.

Cuttings, both root and stem, of this species, have done poorly at Tucson but root cuttings at Albuquerque in 1938 grew well. This willow is remarkable in its ability to sprout from the roots and form thickets. The roots frequently form tangled masses which are almost impossible to dislodge by floods. This species is among our best browse willows. Its natural range would indicate that its use would be confined to our extreme southern areas. Trials at Albuquerque encourage us to believe its range can be greatly extended.

Salix wrightii, Wright Willow.

This species has been considered a variety of S. amygdaloides. It, however, seems quite distinct in leaf character and according to Sargent's "Manual of Trees of North America," is readily distinguished by the yellow or yellowish brown branchlets. It is sometimes large but more frequently is a small tree.

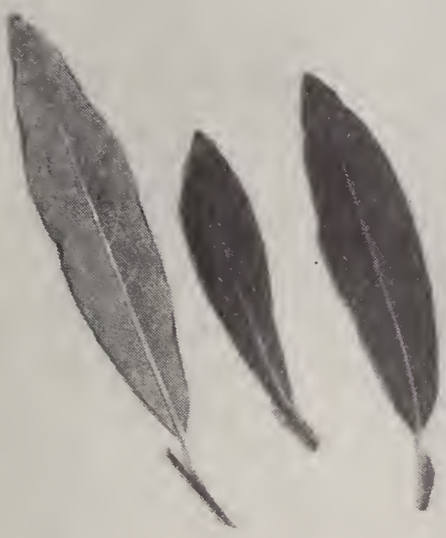
The optimum range of this species seems to be southern New Mexico and western Texas. It, however, occurs along the Rio Grande at Albuquerque, New Mexico. It is possible that this willow may be better suited for use in southern New Mexico than Salix amygdaloides.

The Yewleaf Willow - Salix taxifolia.

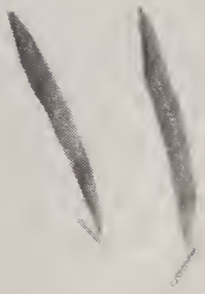
This species is relatively rare in the United States, occurring only in extreme southern Arizona and in extreme southwestern New Mexico. It is an excellent soil binder, a good browse plant, good stock shelter, and a handsome ornamental. It is slow growing and relatively hard to propagate from cuttings. Scene at head of Sycamore Canyon, Santa Cruz County, Arizona.

The Yellow Willow - Salix lutea.

This is a species suitable for planting along ditches, creeks, and highways. It is a good erosion control species and makes excellent windbreaks. Scene at San Luis, Colorado.



Salix subcaerulea



Salix taxifolia

Some exotic willows, not mentioned above, are under trial on the Soil Conservation Service Nursery at Albuquerque. These may come into prominence as their usefulness is proved. One of these is quite widely distributed but commonly is used as an ornamental or shade tree only. It is the common weeping willow, Salix babylonica. Another, and even more beautiful weeping willow is Salix niobe. It has not been observed in cultivation in this region except on the Albuquerque Soil Conservation Service Nursery.

Future work with the willows in this Region will almost certainly include selection and hybridization. This field offers almost inexhaustible possibilities. The work, however, will require very careful research extending over a period of years.

It is hoped that a key to the willows of this region, based on their vegetative characters, can be gotten out in the near future.